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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/600,888	08/15/2000	Kingo Suzuki	P107242-0000	4637

7590

11/08/2002

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EXAMINER

TRINH, HOA B

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 11/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No. 09/600,888	Applicant(s) SUZUKI ET AL.	
Examiner Vikki H Trinh	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 August 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-11 is/are rejected.
- 7) ☒ Claim(s) 12 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.                      6) ☐ Other:

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## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Group I in Paper No. 10 is acknowledged. The traversal is on the ground(s) that the subject matter of Group II can be searched with the subject matter of Group I. The examiner has reconsidered and found applicant's remarks persuasive.

Therefore, the requirement is withdrawn.

This Office Action examines all of the claims 7-13 in the present application.

### *Claim Objections*

2. Claims 7 and 11 are objected to because of the following informalities: after the word "pellet", a " ," should be inserted thereof. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al. (JP 10065211).

Sato et al. (JP 10065211) disclose, with respect to claim 7, a light emitting diode comprising a pellet 1, a major front surface 5 of which is made of a GaAsP mixed crystal, characterized in that the major front surface is a rough surface. See abstract.

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*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (JP 10065211), as applied to claim 7, in view of JP (4-116162).

Sato et al. (JP 10065211) discloses an LED substantially as claimed in claim 7.

However, Sato et al. (JP 10065211) does not explicitly state that the side surfaces of the pellet are rough surfaces.

JP (4-116162) shows an LED having a rough side surface 7. See abstract.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Sato et al. to include the side surfaces being rugged, as taught by JP (4-116162), so as to increase the surface area.

8. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (JP 10065211), as applied to claim 7, in view of Momoi (JP 04250674).

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Sato et al. (JP 10065211) discloses an LED substantially as claimed in claim 7.

However, Sato et al. (JP 10065211) does not explicitly state that the side surfaces of the pellet are rough surfaces.

Momoi (JP 04250674) shows an LED having a rough side surface 7. See abstract.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Sato et al. to include the side surfaces being rugged, as taught by Momoi (JP 04250674), so as to increase the surface area.

As to claim 9, the combined teaching of Sato et al. (JP 10065211), as applied to claim 7, in view of Momoi (JP 04250674) includes the rough surface being formed with fine projections having a diameter overlapping the claimed range of from 0.3  $\mu\text{m}$  to 3  $\mu\text{m}$ . Momoi (JP 04250674), see abstract.

As to claim 10, the combined teaching of Sato et al. (JP 10065211), as applied to claim 7, in view of Momoi (JP 04250674) includes the rough surface being formed with fine projections having a diameter overlapping the claimed range of from 0.3  $\mu\text{m}$  to 3  $\mu\text{m}$ . Momoi (JP 04250674), see abstract.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (JP 10065211) in view of Nishiwaki et al. (59085868).

Sato et al. (JP 10065211) disclose, with respect to claim 7, a light emitting diode 6 comprising a pellet 1, 2, 3, a major front surface 5 of which is made of a GaAsP mixed crystal, characterized in that the major front surface is a rough surface. An etching agent is used to treat the rough surface. See abstract.

However, Sato et al. (JP 10065211) does not explicitly teach a specific etching agent. at

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Nishiwaki et al. (59085868) teaching an etching agent using an etching agent such as an aqueous solution containing Br<sub>2</sub> or I<sub>2</sub>. See abstract.

Therefore, as to claim 11, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Sato et al. with an aqueous solution containing Br<sub>2</sub> or I<sub>2</sub>, as taught by Nishiwaki et al. (59085868), so as to form fine projections on the major front surface of the pellet.

#### *Allowable Subject Matter*

10. Claims 12- 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record does not disclose or fairly suggest in singly or in combination a fabrication process for a light emitting diode, wherein the etching solution contains 40 to 80 parts of nitric acid, 40 to 300 parts of hydrofluoric acid and 400 to 2000 parts of acetic acid based on 1 part of Br<sub>2</sub> or I<sub>2</sub> in a molar ratio.


#### **Conclusion**

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.  
Tsutsui et al. (6,395,572) teaches a pellet with rough surfaces. See entire document.
2. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Vikki Trinh whose telephone number is (703) 308-8238. The Examiner can normally be reached Mon-Tuesday, Thurs-Friday, 7:30 AM - 6:00 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Wael Fahmy, can be reached at (703) 308-4918. General

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inquiries relating to the status of this application should be directed to the Group

receptionist at (703) 308-0858. The fax number is (703) 308-2708.

  
Vikki Trinh,  
Patent Examiner  
AU 2814